REMARKS

In the present Office Action, claims 1, 4, 6, 12, 15, 17 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,517,686 (hereinafter Kennedy) in view of U.S. Patent No. 5,828,699 (hereinafter Heinemann); claims 2, 3, 5, 13, 14, 16 and 19-21 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims; and claims 7-11 were allowed. Applicants wish to express their appreciation to the Examiner for the indication of allowable subject matter.

Applicants have amended claim 1 to incorporate the subject matter of dependent claim 6, amended independent claim 12 to incorporate the subject matter of dependent claim 17 and canceled claims 6 and 17. For the reasons that are further set forth below, Applicants submit that claims 1-5, 7-16 and 18-21 are allowable. Applicants have submitted herewith a request for a two-month extension of time and authorization to charge Deposit Account No. 16-2463 for the appropriate fee.

Applicants believe that a brief review of the prior art and a specific embodiment encompassed by Applicants' claimed subject matter may help to move this case toward allowance. With reference to Fig. 2, a prior art system that includes an FM receiver 100 that provides a composite signal to an adaptive reception system (ARS) 202 is depicted. The composite signal is provided from a detector 114 of the FM receiver 100 to an input of the ARS 202. The ARS 202 utilizes the composite signal to determine a phase adjustment that is needed for a signal received via an antenna 203. As is shown in Fig. 3, one of Applicants' embodiments is directed to a phase compensation circuit 304 that receives a composite signal from an FM receiver 100, via signal line 103, and, in turn, provides a phase compensated signal to the ARS 202, via signal line 303. As is set forth in Applicants' specification, page 6, the FM receiver 100 includes a dynamic IF filter that provides a control signal on signal line 301 that is proportional to the bandwidth of the IF filter. The control signal is provided to the phase compensation circuit 304, which selects an appropriate delay for an FM composite input

signal provided on the signal line 103, which is then provided to the ARS 202 on the signal line 303. Thus, the phase compensation circuit 304 provides a phase compensated FM composite output signal to the ARS 202 such that the ARS 202 can properly function to align the received signals from the antennas 201 and 203, as the bandwidth of the IF filter of the FM receiver is dynamically varied.

As is set forth in Applicants' background, at page 3, prior art FM reception systems that have implemented both dynamic IF filter bandwidth control and phased array antenna diversity have experienced signals with different group delays as the IF filter bandwidth is dynamically varied. These different group delays have affected the ability of the ARS 202 to function properly. That is, reduction in the bandwidth proportionally increases the phase delay of the FM composite signal provided to the ARS 202. It will be appreciated that the FM composite signal is utilized by the ARS 202 to determine the amount of phase shift that needs to be applied such that signals received from the different antennas are aligned. However, prior art FM reception systems have not been able to differentiate between the phase difference in the received signals and the phase shift caused by dynamically varying the bandwidth of the IF filter and, as such, the performance of these systems have widely varied.

According to Applicants' claimed subject matter, a phase compensation circuit is implemented to improve the performance of an FM reception system (that implements IF filter bandwidth control in combination with a phased array antenna diversity system). That is, a phase compensation circuit, according to the present invention, is configured to selectively delay a composite input signal to provide a phase compensated output signal to an input of an ARS. By compensating the composite signal provided to an input of the ARS, compensation of the phase shift introduced by the dynamic variation of a bandwidth of the IF filter of the FM receiver is achieved.

With respect to independent claim 1, as amended, neither Kennedy nor Heinemann, or the combination thereof, teach or suggest a phase compensation circuit that provides a phase compensated composite output signal to an ARS to phase align a plurality of transmitted signals received through a plurality of antennas. More

specifically, Kennedy merely discloses an ARS system that receives a non-phase compensated composite input signal. Thus, Applicants submit that independent claims 1 and 12, as amended, and independent claim 18, as originally submitted, are allowable over the cited art of record. Additionally, Applicants submit that dependent claims 2-5, 13-16 and 19-21 are also allowable for at least the reasons set forth above.

Applicants respectfully submit that this reply is fully responsive to the above-referenced Office Action.

CONCLUSION

For all of the foregoing reasons, Applicants respectfully submit that claims 1-5, 7-16 and 18-21 are allowable. If the Examiner has any questions or comments with respect to this reply, the Examiner is invited to contact the undersigned at (616) 949-9610.

Respectfully submitted,

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